REMARKS

This Amendment is in response to the Office Action having a mailing date of December 16, 2002. Claims 1-22 are pending in the present application. Claims 1, 12, and 13 have been amended. Consequently, claims 1-22 remain pending in the present application.

Claims 1, 12, and 13 have been amended to recite that the second and third birefringent materials have second and third longitudinal axes, respectively, that are parallel to the longitudinal axis of the first birefringent material. Applicant respectfully submits that the amendment to claims 1, 12, and 13 does not narrow the scope of these claims. Support for the amendment can be found in Figures 3A and 3B. Accordingly, Applicant respectfully submits that no new matter is added and no new search is required.

In the above-identified Office Action, the Examiner objected to informalities in the disclosure and claims 1, 12, and 13. Applicant has amended the specification and claims 1, 12, and 13 to address the Examiner's concern. Accordingly, Applicant respectfully submits that the Examiner's objection to the disclosure and claims 1, 12, and 13 has been overcome.

The Examiner rejected claims 1-22 under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 6,366,402 (Li).

Applicants respectfully disagree. It is respectfully submitted that Yiqiang Li, a joint-inventor of the present invention, is the inventor of Li (U.S. Patent No. 6,366,402). Under MPEP 716.1 (Attribution), the cited reference Li can be overcome by a declaration under 37 C.F.R. 1.132 stating that Yiqiang Li conceived or invented the subject matter disclosed in the reference.

A declaration under 37 C.F.R. §1.132 is incorporated by reference herein that attributes the reference to the Applicant. Accordingly, it is believed the reference is no longer applicable. Consequently, Applicant respectfully submits that claims 1-22 are allowable as currently presented.

In view of the foregoing, it is submitted that the claims in the application are patentable over the cited reference and are in condition for allowance. Reconsideration of the rejections and objections is requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made"**.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

April 4, 2003
Date

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

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The optical circulator 100 includes three ports, a first port 102, a second port 104 and a third port 106. The optical circulator 100 is configured such that an optical signal input to the first port 102 will be provided to the second port 104 along a first optical path (depicted in Figures 3A and 3B) and an optical signal input to the second port [106]104 will be provided to the third port 106 along a second optical path (depicted in Figures 3A and 3C). However, an optical signal input to the first port 102 will not be transmitted to the third port 106. Similarly, an optical signal input to the second port 104 will not be provided to the first port 102.

IN THE CLAIMS:

1. (Amended) An optical circulator comprising:

a first port;

a second port opposite to the first port;

a third port adjacent to the first port;

a first birefringent material optically coupled to the first port and the third port, the first birefringent material having a longitudinal axis, a transverse direction perpendicular to the longitudinal axis, a first displacement direction and a first length, the first displacement direction being at a first oblique angle from the transverse direction;

a first rotator pair, the first birefringent material being between first rotator pair and the first port;

a second birefringent material, the first rotator pair being between the first birefringent material and the second birefringent material, the second birefringent material having a second [the] longitudinal axis and a second displacement direction, the second displacement direction being perpendicular to the second longitudinal axis,

a second rotator pair, the second birefringent material being between the first rotator pair and the second rotator pair; and

a third birefringent material, the third birefringent material having a third longitudinal axis parallel to the longitudinal axis, the transverse direction perpendicular to the third longitudinal axis, a third displacement direction and a second length, the third displacement direction being at a second oblique angle from the transverse direction;

wherein a first optical path is established from the first port to the second port, and a second optical path is established from the second port to the third port such that when an optical signal is input at the first port the optical signal travels along the first optical path to the second port and when the optical signal is input to the second port the optical signal travels along the second optical path to the third port.

12. (Amended) An optical circulator comprising:

a first port;

a second port opposite to the first port;

a third port adjacent to the first port;

means for establishing a first optical path and a second optical path, the first optical path from the first port to the second port, the second optical path from the second port to the third

port such that when an optical signal is input at the first port the optical signal travels along the first optical path to the second port and when the optical signal is input to the second port the optical signal travels along the second optical path to the third port, the optical path establishing means including

a first birefringent material optically coupled to the first port and the third port, the first birefringent material having a longitudinal axis, a transverse direction perpendicular to the longitudinal axis, a first displacement direction and a first length, the first displacement direction being at a first oblique angle from the transverse direction;

a second birefringent material, the first birefringent material being between the first port and the second birefringent material, the second birefringent material having a second [the] longitudinal axis and a second displacement direction, the second displacement direction being perpendicular to the second longitudinal axis,

a third birefringent material, the second birefringent material being between the first birefringent material and the third birefringent material, the third birefringent material having a third longitudinal axis parallel to the longitudinal axis, the transverse direction perpendicular to the third longitudinal axis, a third displacement direction and a second length, the third displacement direction being at a second oblique angle from the transverse direction.

13. (Amended) A method utilizing an optical circulator, the optical circulator including a first port, a second port and a third port adjacent to the first port, the method comprising the steps of:

(a) inputting the optical signal to a first port or a second port opposite to the first port;

(b) transmitting the optical signal through a means for establishing a first optical path and a second optical path such that when an optical signal is input at the first port the optical signal travels along the first optical path to the second port and when the optical signal is input to the second port the optical signal travels along the second optical path to the third port, the first optical path from the first port to the second port, the second optical path from the second port to the third port, the optical path establishing means including a first birefringent material optically coupled to the first port and the third port, the first birefringent material having a longitudinal axis, a transverse direction perpendicular to the longitudinal axis, a first displacement direction and a first length, the first displacement direction being at a first oblique angle from the transverse direction, a first rotator pair, the first birefringent material being between first rotator pair and the first port, the first rotator pair includes a first rotator and a second rotator, the first rotator rotating a polarization of an optical signal in a first direction, the second rotator rotating the polarization of the optical signal in a second direction opposite to the first direction, a second birefringent material, the first rotator pair being between the first birefringent material and the second birefringent material, the second birefringent material having a second [the] longitudinal axis and a second displacement direction, the second displacement direction being perpendicular to the second longitudinal axis, a second rotator pair, the second birefringent material being between the first rotator pair and the second rotator pair, the second rotator pair including a third rotator and a fourth rotator, the third rotator rotating the polarization of the optical signal in the second direction, the fourth rotator rotating the polarization of the optical signal in the first direction, and a third birefringent material, the third birefringent material having a third longitudinal axis parallel to the longitudinal axis, the transverse direction perpendicular to the

third longitudinal axis, a third displacement direction and a second length, the third displacement direction being at a second oblique angle from the transverse direction.